A Streaming Digital Video Interface for Accurate Protein Crystal Centering
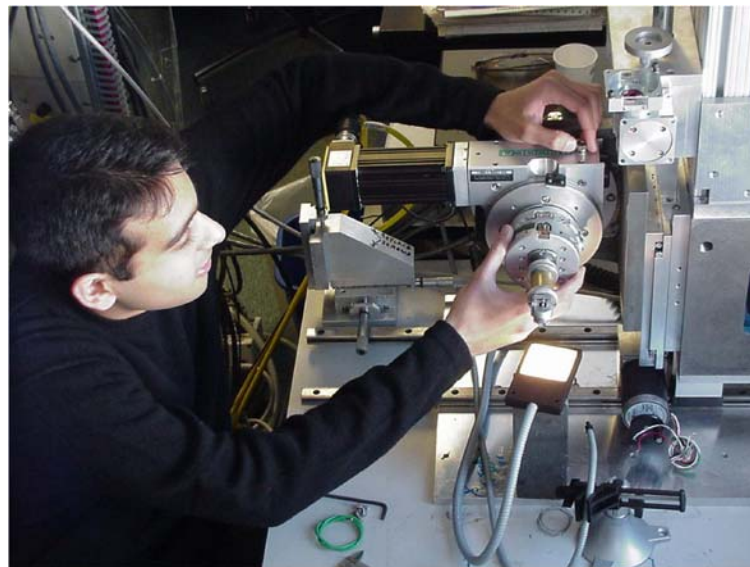
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Undergraduate computer science major Ismail Degani, under supervision of staff scientist Richard Gillilan, has designed a remote crystal-centering software package that now allows beamline users to position protein crystals in the x-ray beam with a few clicks of the mouse. The high-resolution display uses state-of-the art streaming digital video that can be viewed on any computer console outside the experimental hutch, including remote sites. The system has been in operation during the past year. The current system is not only faster than manual positioning, but also more accurate, allowing smaller protein crystals to be rapidly positioned for structural studies.

Both Ismail Degani (above) and a Master of Engineering student, Qijia Ouyang, are currently exploring digital image enhancement methods and techniques for further automation they will publish in 2004.